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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,708	04/27/2005	Eisuke Sasaoka	050212-0646	8757
20277	7590	08/14/2006	[REDACTED]	EXAMINER
MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			[REDACTED]	LEPISTO, RYAN A
			[REDACTED]	ART UNIT
				PAPER NUMBER
				2883

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/532,708	SASAOKA ET AL.
Examiner	Art Unit	
Ryan Lepisto	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 1-17, 19 and 20 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 18, 21-27 and 29-49 is/are rejected.
- 7) Claim(s) 28 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 27 April 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/27/05, 10/27/05.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 1-17, 19 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group I, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 29 June 2006.

Priority

If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 119(e), a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the

prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference

in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Information Disclosure Statement

The information disclosure statement filed 27 April 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code on page 3. See MPEP § 608.01.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).
"Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 2b. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or

amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 26, 37, 40, 43, 46 and 49 are objected to because of the following informalities: Each of these claims states a range as being a value or more but a second value or less. As it reads now this could be interpreted to include every value possible since one range is open-ended to higher values and the other is open-ended to lower values. Suggested claim language would be, "have a dispersion wavelength in the range of 1300 nm to 1324 nm." Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 21 is rejected under 35 U.S.C. 102(b) as being anticipated by **Jameson et al (US 6,301,426 B1)**. Jameson teaches a standard single-mode silica fiber from Corning having a core surrounded by a cladding wherein attenuation is low (< 0.4 dB/km) at 1310 nm and the mode field diameter at the same wavelength is 9.3 +/- 0.5 μm (column 2 lines 61-63, column 3 lines 1-7). Prior art which teaches a range within, overlapping, or touching the claimed range anticipates if the prior art range discloses the claimed range with sufficient specificity. When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results

may also render the claims unobvious. The question of “sufficient specificity” is similar to that of “clearly envisaging” a species from a generic teaching. See MPEP § 2131.02.

Claims 21-27, 30-37, 40-43, 46 and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by **Bickham et al (US 2003/0174988 A1)** (Bickham). Bickham teaches a silica glass optical fiber having a core (not containing germania, paragraph 0095) and cladding have the following properties: a transmission loss at 1380 nm is preferably less than about 0.1 dB/km (paragraph 0017), a transmission loss at 1310 nm being the same as the attenuation at 1380 nm or within 0.05 dB/km the transmission loss at 1380 nm or the transmission loss at 1380 is lower than the transmission loss at 1310 nm (paragraph 0017), a mode field diameter at 1310 nm of 6.5 to 6.7 μm (Table 2), a chromatic dispersion at 1550 nm between 5 and 9 ps/nm/km (paragraph 0010), a dispersion slope at 1550 nm is less than about 0.042 ps/nm²/km (paragraph 0013), a cable cutoff of less than 1240 nm (paragraph 0014), a transmission loss at 1550 nm of less than about 0.02 dB/km (paragraph 0016), the difference between transmission loss at 1550 nm and at 1310 nm being between 0.1 to 0.4 (from the values in paragraph 0017), polarization mode dispersion at 1550 nm of less than about 0.04 ps/km^{1/2} (paragraph 0018), a core outer diameter of between 6 and 10 μm (paragraph 0024), a refractive index difference between the core and cladding of between 0.1% to 0.6% (from the values in paragraphs 0023 and 0030, which is the difference between the core and the outer cladding), loss due to OH induced water peaks at 1380 nm being virtually eliminated (paragraph 0112), a measured zero dispersion wavelength of between 1308

and 1316 nm (Table 2) and a dispersion slope at 1400 nm (which is in the preferable zero dispersion wavelength range (0010)) of 0.037 to 0.039 ps/nm²/km (Table 2).

Prior art which teaches a range within, overlapping, or touching the claimed range anticipates if the prior art range discloses the claimed range with sufficient specificity. When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching. See MPEP § 2131.02.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of **Jameson et al (US 6,301,426 B1)** (Jameson) and **Nagayama et al (US 2002/0044753 A1)** (Nagayama) with further teachings by **Chraplyvy et al (US 6,205,268 B1)** (Chraplyvy).

Jameson teaches a standard silica single-mode fiber known in the art having a mode field diameter of $9.3 \pm 0.5 \mu\text{m}$ at 1310 nm (column 2 lines 61-63).

Jameson does not teach expressly a Rayleigh scattering coefficient value.

Nagayama teaches that the Rayleigh scattering coefficient value of a standard silica fiber being about $0.85 \text{ dB/km} \cdot \mu\text{m}^4$ (paragraph 0023).

Nagayama does not teach expressly the mode field diameter of such standard fiber.

Jameson and Nagayama are analogous art because they are from the same field of endeavor, optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art that standard, known fibers in art typically have the mode field diameter and Rayleigh scattering coefficient value taught by Jameson and Nagayama and therefore would recognize that a silicon fiber with such mode field diameter would also have the Rayleigh scattering coefficient in the range taught by Nagayama since this value is a basic phenomenon is proportional to $1/\text{wavelength}$ of the light in the fiber and cannot be eliminated (Chraplyvy, column 6 lines 61-67).

The motivation for doing so would have been to transmission losses in the fiber (Chraplyvy, column 6 lines 57-61; Nagayama, paragraph 0022).

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). For more recent cases applying this principle, see *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bickham as applied to claim 21-27, 30-37, 40-43, 46 and 49 above, and further in view of **Sasaoka et al (US 6,345,140 B1)** (Sasaoka).

Bickham teaches the fiber previously discussed.

Bickham does not teach expressly the value of the Petermann-I mode field diameter.

Sasaoka teaches that the Petermann-I mode field diameter is related to the mode field diameter by the known equations 1a and 1b (column 1 lines 52-59).

Bickham and Sasaoka are analogous art because they are from the same field of endeavor, optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the fiber taught by Bickham will have a Petermann-I mode field diameter less than 10 μ m using the equations provided by Sasaoka since Bickham teaches a mode field diameter at 1550 nm of 7.5 to 7.7 μ m (Table 2).

The motivation for doing so would have been to have a better way to described the mode field diameter of the fiber while including the relationship of the electric field amplitude and a positional variable (Sasaoka, column 1 lines 52-65).

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). For more recent cases applying this principle, see *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843

(Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Claims 38-39, 44-45 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bickham as applied to claim 21-27, 30-37, 40-43, 46 and 49 above, and further in view of **Kato et al (US 6,266,467 B1)** (Kato).

Bickham teaches the fiber previously discussed.

Bickham does not teach expressly the cladding doped with fluorine.

Kato teaches a fiber having a fluorine doped cladding (column 27 lines 4-17).

Bickham and Kato are analogous art because they are from the same field of endeavor, optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to dope the cladding with fluorine since Bickham teaches it is known to diffuse dopants during manufacturing to round the corners of index profiles of his invention (paragraph 0127).

The motivation for doing so would have been to be able to enhance refractive index differences between layers will still allowing relatively easy manufacturing methods (Kato, column 27 lines 15-17).

Allowable Subject Matter

Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: This claim would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims because the latter, either alone or in combination, does not disclose nor render obvious an optical fiber mainly comprising silica glass having the combination of numerical property limitations giving the claims 21, 22 and 28, in combination with the rest of the claimed limitations.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All of the following references teach many of the limitations of applicant's claims: Takahashi et al (US 2004/0136668 A1), Oliveti et al (US 2004/0033039 A1), Tsukitani et al (US 2003/0147610).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-Th 7:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ryan Lepisto
Art Unit 2883
Date: 8/14/06



Frank Font
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